

### REMARKS

Claims 1-3, 7-9 and 11-17 are pending in the above-identified application. Claim 10 has been incorporated into claim 1. Support for the features inserted into claim 1 is found, for example, in paragraphs [0033], [0041] and [0049] of the specification. Support for new claim 17 is found by reviewing the values of "Hc" and "Hs" in Examples 1-3 in Table 4 of the present specification, wherein the hardness difference is determined by subtracting the central point hardness (Hc) from the surface hardness (Hs).

#### Issues under 35 USC 103(a)

Claims 1-3, 5 and 7-16 have been rejected under 35 USC 103(a) as being obvious over Sugimoto '936 (USP 6,390,936) and Yoshida '249 (JP 2000-271249).

#### Present Invention and Its Advantages

The present invention is directed to a golf ball having the following features:

- [i] the center has a central point hardness in Shore D hardness of 20 to 40 and a surface hardness in Shore D of 32 to 53,
- [ii] the intermediate layer has a thickness of 0.3 to 2.5 mm, hardness in Shore D hardness of 50 to 75 and a flexural modulus of 70 to 160 MPa,
- [iii] the outermost layer of the cover has a flexural modulus of 180 to 280 MPa,
- [iv] the golf ball has a deformation amount when applying from an initial load of 98 N to a final load of 1275 N to 3.0 to 4.3 mm,
- [v] the hardness of the intermediate layer is higher than a surface hardness in Shore D hardness of the center and a hardness in Shore D hardness of the outermost layer of the cover,

and the flexural modulus of the intermediate layer is lower than that of the outermost layer of the cover, and

[vi] the intermediate layer is formed from rubber composition comprising polybutadiene, co-crosslinking agent, organic peroxide and filler as an essential component, and the co-crosslinking agent is metal salt other than zinc salt of  $\alpha,\beta$ -unsaturated carboxylic acid.

Employment of the above-noted combination of features [i]-[vi] provides for advantageously improved golf ball deformation, coefficient of restitution, flight distance and shot feel properties as evidenced by the comparative test results summarized in Tables 4 and 5 at pages 37-39 of the present specification. Note, for example, with regard to feature [ii] that if the flexural modulus in the intermediate layer is outside the recited range of 70-160 MPa, than inferior properties result as shown by Comparative Examples No. 1-3 in Table 5, in contrast to Example Nos. 1-3 (present invention) in Table 4.

#### Distinctions between Present Invention and Cited References

Sugimoto '936 discloses in column 3, lines 13 to 19 of the specification that the co-crosslinking agent for the intermediate layer can be a metal salt of  $\alpha,\beta$ -unsaturated carboxylic acid, including mono or divalent metal salts, such as zinc or magnesium salts of  $\alpha,\beta$ -unsaturated carboxylic acids having 3 to 8 carbon atoms (e.g. acrylic acid, methacrylic acid, etc.) and the preferred co-crosslinking agent is zinc acrylate.

Yoshida '249 discloses a multi-piece solid golf ball, wherein an inner layer core 1 has a central JIS-C hardness of 55-70, an outer layer core 2 has a JIS-C hardness of 75-90, and a cover 3 Shore D surface hardness of 64 or greater.

Both Sugimoto '936 and Yoshida '249 fail to disclose or suggest the flexural modulus properties of the intermediate layer of feature [ii], the flexural modulus properties of the outermost layer of the cover of feature [iii] or the deformation properties of the golf ball of

feature [iv] employed in the present invention and recited in the present claims. Thus, Sugimoto '936 and Yoshida ' 249 fail to recognize the unexpected, advantageous properties exhibited by the golf ball of the present invention as evidenced of the comparative test results summarized in Tables 4 and 5 in the present specification and discussed above. Consequently, significant patentable distinctions exist between the present invention and each of these cited references. In addition, even if these references are hypothetically combined, the resulting hypothetical combined disclosure would still fail to disclose or suggest the features [ii] – [iv].

It is submitted for the reasons above that the present claims define patentable subject matter such that this application should now be placed in condition for allowance.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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